



PRINTING AND BOOK PRODUCTION IN BENGAL

AN EXHIBITION AT RABINDRANATH TAGORE CENTRE

14 FEBRUARY 2009 – 21 FEBRUARY 2009

PRESENTED BY
SCHOOL OF CULTURAL TEXTS AND RECORDS
JADAVPUR UNIVERSITY

IN COLLABORATION WITH BRITISH COUNCIL AND
INDIAN COUNCIL FOR CULTURAL RELATIONS, KOLKATA

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An Exhibition at
Rabindranath Tagore Centre
9A Ho Chi Minh Sarani
Kolkata 700071

Presented by
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THE BEGINNINGS 1

The first printing press in Kolkata was set up in 1777 by James Augustus Hicky (?1739-1802). A bankrupt businessman, Hicky turned to printing bills and forms for the government while serving a prison sentence for unpaid debts. The first book Hicky printed was the *Calendar for the Year of Our Lord MDCCLXXVIII* (1778). He brought out the first printed weekly *Bengal Gazette* in 1780. Following the lead of Hicky's *Gazette*, several periodicals in the English language, such as *India Gazette* (1780) and *Calcutta Gazette* (1784), were published from Kolkata in the last two decades of the eighteenth century. Many English presses printed periodicals. There were at least 34 periodicals before the year 1800.

- ❖ Masthead from *Hicky's Bengal Gazette*, 1781
- ❖ First page of the first number of *Calcutta Gazette or Oriental Advertiser*, 4 March 1784, published by Francis Gladwin and printed at the Company's Press at 37 Larkins Lane. From June 1815 it was printed at the Military Orphan Press. In 1859 its printing was entrusted to Bengal Secretariat Press, which moved to 38 Gopalnagar Road in 1923.

The earliest Bengali plays to be staged in Kolkata were adapted from Molière and Jodrelle by Gerasim Stepanovich Lebedeff (1749-1818), a Russian probably from Ukraine. He is said to have embarked on founding a press in Kolkata, financed by the Czar, for printing Bengali books. In 1797, two years after the plays were staged at the New Theatre on Ezra Street, the British expelled the insolvent playwright.

- ❖ Portrait of Gerasim Stepanovich Lebedeff (1749-1818)

The government set up its own press, the Honourable Company's Press, which started operations around 1780. Printing shops came up in 'White Town' in quick succession. These would turn Bengal into a leading centre for printing in the English language in the nineteenth century. In 1786, Daniel Stuart and Joseph Cooper, owners of Chronicle Press, started the first type foundry in the city. By 1789, they were also casting Nastaliq and Devanagari founts, needed for Persian and Hindustani advertisements in their journal *Calcutta Chronicle*. The same year, one reads reports of a fire at a paper mill in Kolkata owned by a certain Mr Brown. By 1800, there were 17 printing houses and 40 printers in Kolkata, and they had produced a total of 667 titles.

- ❖ Page from Aaron Upjohn (Anthony de Souza?), *Ingr3aji bangali vokebilari*,

printed at the Chronicle Press, Kolkata, 1793, showing types probably cast at the Kolkata foundry of Daniel Stuart and Joseph Cooper (established c. 1786)

- ❖ Title-page from James Atkinson, *The City of Palaces*, printed at the Government Press, Kolkata, 1824
- ❖ Title-page from H. James Rainey, *A Historical and Topographical Sketch of Calcutta*, printed at the Englishman Press, Kolkata, 1876

Printed illustrations and maps used fairly developed techniques in Kolkata even in the early years of printing. The artist and engraver Robert Mabon printed 19 leaves of hand-coloured plates in Kolkata in 1797. Thomas Daniell, William Baillie, Aaron Upjohn, John Alefounder, Richard Brittridge and James Moffat were other artists who made prints and engravings. The high level of competence in graphic reproduction is evident in the 1799 edition of 250 coloured etchings by Frans Balthazar (or Baltasar) Solvyns ...*Descriptive of the Manners, Customs, Character, Dress, and Religious Ceremonies of the Hindoos* printed at the Mirror Press (first published in 1796), Kolkata, and in printed maps of the city.

- ❖ *Milkman*: coloured etching by the Belgian artist Frans Baltasar Solvyns, from his *A Collection of Two Hundred and Fifty Coloured Etchings Descriptive of the Manners, Customs, Dress, and Religious Ceremonies of the Hindoos*, printed at the Mirror Press, Kolkata, 1799
- ❖ *Hijra*: etching from Solvyns, *A Collection of Two Hundred and Fifty Coloured Etchings Descriptive of the Manners, Customs, Dress, and Religious Ceremonies of the Hindoos*, 1799
- ❖ Map of Calcutta, based on the survey by Mark Wood made in 1784-5, published by William Baillie, 1792
- ❖ Map of Calcutta and Its Environs, based on Aaron Upjohn's survey in 1792-3. The print seems to have been taken in the early nineteenth century.

Bengali characters were printed from plates as early as 1667 in Athanasius Kircher's *China Illustrata* published from Amsterdam. There were at least seven other books, a few by Portuguese authors publishing from Lisbon, that printed samples of Bengali letters using the same process. There were others that printed Bengali texts in the Roman fount. Instances include *Crepar xasrter orth, bhed* (1734) by the Portuguese missionary Manoel de Assumpção, and *Brahmin-Roman-Catholic-sambad* (1735) by Dom Antonio de Rozario, an Indian prince converted by an Augustine missionary.

- ❖ Bengali characters printed from plates: plate from Athanasius Kircher, *China Illustrata*, published by Johannes Jansson van Waesberg, Amsterdam, 1667
- ❖ Title-page and sample of engraved Bengali characters from *A Code of Gentoo Laws*, translated by Nathaniel Brassey Halhed, and printed in London, 1776

William Bolts, a Dutch employee of German extraction who worked for the East India Company, had unsuccessfully tried to design a Bengali fount. Bolts was expelled from India in 1767, but may have continued his experiments with Indian typefaces in London with the help of Joseph Jackson who had been trained at the Caslon foundry. The first book to use Bengali moveable type is *A Grammar of the Bengal Language* by Nathaniel Brassey Halhed (1751-1830), printed in Hugli in 1778 at a printing shop owned by John Andrews. The type was designed by the merchant-scholar Sir Charles Wilkins (1749-1836), with assistance from the English engraver Joseph Sepherd (?1753-87) and the Bengali craftsman Panchanan Karmakar (d. 1803/4).

- ❖ Portrait of Charles Wilkins (1749-1836)
- ❖ Bengali types designed by Charles Wilkins, and made with assistance from Panchanan Karmakar. The types were cast by Don Turner at the Oxford University Press in 1980 from matrices belonging to Wilkins and preserved in the India Office Library, London. Identifying the typefaces, sorting the types into cases, and composing the specimen was the work of Fiona Ross and James Mosley.
- ❖ Charles Wilkins's Bengali fount in John Johnson, *Typographia or the Printer's Instructor*, published in London by Longman, Hurst, Rees, Orme, Brown & Green, 1824
- ❖ Portrait of Nathaniel Brassey Halhed (1751-1830)
- ❖ Title-page and sample of bilingual printing from Nathaniel Brassey Halhed, *A Grammar of the Bengal Language*, printed at Hugli by Charles Wilkins, 1778: the first Bengali book to use moveable type

- ❖ Title-page and imprint page in English and Persian from Francis Gladwin, *A Compendious Vocabulary English and Persian*, printed for the East India Company by Charles Wilkins at Malda, 1780. Wilkins may have bought the press in Hugli, owned by John Andrews, on which Halhed's *Grammar* was printed. The Nastaliq fount was designed by Wilkins.
- ❖ Bengali pica fount made by V. & J. Figgins, London, in the early nineteenth century

Halhed's grammar used Bengali characters, but the book was not written in Bengali. In 1784, Jonathan Duncan translated a legal tract into Bengali. This translation may claim to be the earliest known Bengali printed book. A differently designed Bengali typeface may be seen in the work of the Chronicle Press. By the end of the eighteenth century, printers in Bengal showed remarkable skill in imposing types of multiple languages, not all of which ran from left to right, for the same forme.

- ❖ Title-page and sample of bilingual printing from Jonathan Duncan, *Regulations for the Administration of Justice in the Courts of Dewannee Adawlut*, printed at the Honourable John Company's Press, Kolkata, 1789 (first published 1784)
- ❖ Bengali moveable type used in Aaron Upjohn (Anthony de Souza?), *Ingraji bangali vokebilari* printed at the Chronicle Press, Kolkata, 1793
- ❖ Title page from John Miller, *The Tutor or a New English and Bengalee Work*, printed in 1797. The typeface suggests it was printed at the Chronicle Press, Kolkata.
- ❖ Page from *Calcutta Gazette or Oriental Advertiser*, 18 March 1784, showing English, Persian and Bengali characters imposed for the same page. The Bengali public announcement is probably the earliest printed advertisement in the language.
- ❖ Page from *A Treaty of Commerce*, a 17-page trilingual tract, published by the East India Company and printed at its press in Kolkata in 1788. The Persian and Bengali translations are attributed to George Frederick Cherry.

MISSION PRESS (ESTABLISHED 1800)
AND
FORT WILLIAM COLLEGE (ESTABLISHED 1800)

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In 1800, Lord Wellesley founded Fort William College in Kolkata for training East India Company civilians in local languages, laws and customs. The College brought British linguists and Indian scholars together to compile vocabularies, bilingual dictionaries and grammars. The process was led by William Carey (1761-1834), the Baptist missionary, who joined the College in 1801 to teach Sanskrit, Bengali and Marathi. Carey's team, which included Bengali authors such as Ramram Basu, Golaknath Sharma and Mrityunjay Vidyalankar, prepared text-books for the Company curriculum.

- ❖ William Carey's translation of the Psalms of David *Daooder geet*, printed at the Mission Press, Shrirampur, 1803: title-page showing the seal of Fort William College and a sample page
- ❖ Title-page and title-verso from Krittibas Ojha, *Ramayana* printed at the Mission Press, Shrirampur, 1803. The title-verso shows the seal of Fort William College.
- ❖ Title-page from *Tota ithas*, a translation from the Persian of Muhammad Qadri by Chandicharan Munshi for Fort William College, printed at the Mission Press, Shrirampur, 1805
- ❖ Title-page from the same book printed in London, 1825
- ❖ Title-page and sample of bilingual printing from H. P. Forster, *A Vocabulary in Two Parts, English and Bongalee and Vice Versa*, printed at Ferris Press, Kolkata, 1799, and recommended for study at Fort William College
- ❖ Title-page and sample page from Abdoor Rusheed-e T'Hatvee and Molovee Allah Daud, *A Dictionary of Arabic Words with a Persian Translation*, published by Fort William College, Kolkata, 1808
- ❖ Title-page from *Prem sagar*, Lallulal's Hindi translation for Fort William College of the tenth chapter of *Srimadbhagavat*, printed at the Sanskrit Press, Kolkata, 1810
- ❖ English title-page from the 1842 edition of *Prem sagar*, printed at the Sarasudhanidhi Press, Kolkata, 1842
- ❖ Hindi title-page from the 1842 edition of *Prem sagar*, printed at the Sarasudhanidhi Press, Kolkata, 1842. Both title-pages of the 1842 edition show the influence of the lay-out of Western exemplars.

The same year, Carey and his colleagues founded the Serampore Mission of the Baptist Missionary Society and its press in Shrirampur, a Danish settlement close to the printing shops in Hugli and Kolkata. Carey had earlier run a press at Madnabati in Dinajpur. Serampore College, founded by them in 1818, was

granted the Danish Royal Charter in 1827. Carey's colleagues, William Ward (1769-1823), Joshua Marshman (1768-1837), and John Clark Marshman (1794-1877) wrote, edited and compiled Bengali texts, while his son Felix Carey (1786-1822) pioneered the use of scientific terms in Bengali and translated into the language John Bunyan's *Pilgrim's Progress* (1821).

- ❖ Photograph of Serampore College
- ❖ Old map by the Surveyor General of India of the town and environs Shrirampur showing location of Serampore College and the paper mill set up by the Baptists
- ❖ Portrait of William Carey (1761-1834)
- ❖ Portrait of Joshua Marshman (1768-1837)
- ❖ Portrait of William Ward (1769-1823)
- ❖ Title-pages from Kashiram Das, *Mahabharat*, Books 3 and 4, printed at the Mission Press, Shrirampur, 1802
- ❖ Title-page from *Dharma pustak*, a translation of several books of the Old Testament, printed at Shrirampur, 1805. There are a few Bengali translations of the Bible dating from 1801 printed at Shrirampur but without any mention of the Mission Press. It is not clear if these were printed at another press.
- ❖ Parallel printing in English and Bengali from the first number of *Dig-darshan*, the first Bengali periodical for young readers, printed at the Mission Press, Shrirampur, and published by Calcutta School Book Society, 1818
- ❖ Page from the first number of *Samachar darpan*, printed at the Mission Press, Shrirampur, 23 May 1818
- ❖ Page from *The Friend of India*, printed at the Mission Press, Shrirampur, 5 January 1837
- ❖ Page from *The Friend of India*, Monthly Series, vol. 11, no. 114, printed at the Mission Press, Shrirampur, January 1828

The Baptists soon turned Bengal into the leading centre of modern Indian print culture. The first book off its wooden press was the Bengali translation of the Gospel of St Matthew attributed to Ramram Basu and John Thomas (1801). Within a decade the press was printing in Arabic, Persian, Devanagari, Telugu, Punjabi, Marathi, Oriya, Kannada, Chinese, Burmese, Greek, Hebrew and English. By 1832, the Mission Press had printed 212,000 copies of books in 40 languages. Two years later, the count for languages rose to 47, with the Mission having cast types for 40 of these.

- ❖ Manuscript leaf from William Carey's Polyglot Dictionary involving Sanskrit and 13 other languages
- ❖ Page from the first volume of the Sanskrit *Ramayana*, with an English prose translation by William Carey and Joshua Marshman, printed at the Mission Press, Shrirampur, 1806
- ❖ Title-page and sample from William Carey, *A Grammar of the Punjabee Language*,

- printed at the Mission Press, Shrirampur, 1812
- ❖ Title-page from the Sanskrit Bible, printed at the Mission Press, Shrirampur, 1812
 - ❖ Title-page from the Hindi Bible, printed at the Mission Press, Shrirampur, 1812
 - ❖ Title-page from the Armenian Bible, printed at the Mission Press, Shrirampur, 1817
 - ❖ Title-page from the Psalms of David in 'Mussalman Bengali', printed for Calcutta Auxiliary Bible Society at the Baptist Mission Press, Kolkata, 1858. Texts in 'Mussalman Bengali', an Islamic variant of the language, were often printed back-to-front in imitation of Arabic practice.
 - ❖ Title-page from the Bengali translation of Charles and Mary Lamb's *Tales from Shakespeare* by Edward Roer, published in the Bengali Family Library series by the Vernacular Literature Society and printed at the Baptist Mission Press, Kolkata, 1853

In 1830, an article in *Samachar darpan* marvelled at the progress in native printing. By then, there were several presses in Kolkata set up by Indians. Baburam and Lallulal owned a press in Khidirpur before 1807, the year they printed the Sanskrit vocabulary *Amarkosh* compiled by H. T. Colebrook. In 1818 Gangakishore Bhattacharya installed the first press in the north of the city. By 1859, 46 printing houses in Kolkata were being run by Indians. These were soon followed by other establishments, especially around the region off Chitpur Road (now Rabindra Sarani) known as Battala (or Bartala), stretching from B. K. Pal Avenue in the north to Beadon Street (now Dani Ghosh Sarani) in the south.

- ❖ Map of north Kolkata showing position of Battala (source: *Woodcut Prints of Nineteenth Century Calcutta*, ed. Ashit Paul, Kolkata, Seagull, 1983)
- ❖ Title-page from *Amarsingha krita abhidhan*, published and printed by Gangakishore Bhattacharya, Bahara, BE 1232 (1825-6)

Bishwanath Deb set up a press in the region, and published a text-book on arithmetic in 1818. Until the 1860s, Battala remained the focus of the city's book trade. Its wooden presses churned out large quantities of inexpensive books. Battala published scandals, almanacs, farces, erotica and romances, as also biographies, histories, religious texts and educational books. It also made classics from Sanskrit and Perso-Arabic literature, often in Bengali translation, affordable for a large reading public, distributing its ware in the districts through itinerant retailers.

- ❖ Title-page from the third impression of Durgaprasad Mukhopadhyay, *Gangabhaktitarangini*, Kolkata, BE 1230 (1823-4). The book was printed on *tulat* paper, the material for many sacred manuscript books or *puthis*. Jute and cotton rags were part of the ingredients for the raw pulp.
- ❖ *Matsyapurāṇokta Durgapujapaddhati*, a religious manual printed in the *puthi* format by Hindustan Printing and Publishing House, Kolkata, Saka Era 1849 (c. 1927)
- ❖ Title-page from *Manbhanjan grantha*, with a gloss by Kalikrishna Das, printed and published by Nrityalal Shil of Ahiritola, BE 1287 (1880-1)
- ❖ Title-page from Jaynarayan Mukhopadhyay, *Radhakrishnabilas*, published by Trailokyanath Datta and printed at the Sudharnab Press on Chitpur Road, BE 1293 (1886-7)
- ❖ Title-page from the eleventh impression of Shri Dede Babaji, *Indrajāl ba udasini rajkanyar puthi* (the first three parts), a popular book on *tantra* published by Arya Pustakalaya on Upper Chitpur Road, and printed at Basak Press on Masjidbari Street, Kolkata, no date
- ❖ An illustration signed 'K.B.G.' from the second edition of Abinashchandra

Mitra's Bengali translation of the *Arabian Nights*, published by Ganeshchandra Ghosh and printed at the Dakshayani Press on Nimu Goswami Lane, Kolkata, BE 1294 (1887-8)

- ❖ Title-page from the third edition of Ramnidhi Gupta, *Geetaratna grantha*, published by Nrityalal Shil of Ahiritola, Kolkata, BE 1275 (1868-9)
- ❖ Title-page from *Sangit-kalpataru*, a collection of songs compiled by Narendranath Datta (Swami Vivekananda) and Baishnabchandra Basak, published by Aryapustakalaya on Upper Chitpur Road, Kolkata, 1887
- ❖ Title-page from the third edition of Bishweshwar Tarkalankar, *Pakrajeshwar*, the earliest recipe book in Bengali, published and printed by Nrityalal Sil of Ahritola, BE 1287 (1881-2)
- ❖ Title-page from Bholanath Mukhopadhyay, *Bhyalare mor bap*, a farce published by I. C. Chandra and Brother and printed at the General Printing Press on Chitpur Road, Kolkata, BE 1283 (1876-7)
- ❖ Title-page and illustration from *Jamaibabu*, printed at the India Directory Press and published by Kishorimohan Bagchi of P. M. Bagchi & Co., Masjidbari Street, Kolkata, BE 1330 (1923-4)
- ❖ Title-page from *Puratan panjika*, an almanac published in 1844
- ❖ Undated title-page from a Battala satire published on the occasion of Durga Puja. Such ephemera from the late nineteenth century set the trend for Puja publications and special numbers.
- ❖ Advertisement of Battala titles in a nineteenth-century almanac

In 1857, James Long counted 322 titles, with a total print run of 571,670, produced by 46 Kolkata presses owned by Indians. Of these, 23 were books in 'Mussalman Bengali'. Religious and secular titles continued to be published from Muslim and Hindu publishing houses in Battala, with the texts occasionally printed back-to-front in imitation of Arabic practice.

- ❖ Title-page from *Haltannabi*, published by Gauricharan Pal and printed at Harihar Press on Chitpur Road, Kolkata, BE 1280 (1873-4)
- ❖ Title-page from *Goleharmuj ketab*, published by Maheshchandra Sil, Kolkata, BE 1285 (1878-9)
- ❖ Title-page from the second edition of Abdus Shakur, *Sahi gule bakaoli*, published by Munshi Ghulam Maula and Sons and printed at the Habibi Press on Mechhuabajar Street, Kolkata, BE 1327 (1921-2)
- ❖ Logo of Munshi Ghulam Maula and Sons and Habibi Press, combining religious texts of Muslims, Hindus and Christians

Relief-printed designs are seen in early books printed in Bengal such as H. P. Forster's *Vocabulary in Two Parts, English and Bongalee and Vice Versa* (1799). In 1822, John Lawson produced wood engravings for *Pashvabali*, the first illustrated monthly for young readers.

- ❖ Illustration engraved by John Lawson from the fourth number of *Pashvabali*, August 1822, published by Calcutta School Book Society

Annadamangal, perhaps the earliest illustrated Bengali book, was published in 1816. An illustrated Bengali almanac was published in 1818. Local engravers were producing commendable work in the early years of the nineteenth century. Between 1818 and 1820 one comes across praises of Bengali illustrators such as Kashinath Mistri and Harihar Bandyopadhyay. Among early Battala artists, Krishnachandra Mistry and Ramdhan Swarnakar produced signed pieces of quality. In 1854, Calcutta School of Industrial Art was established where local artists were trained in woodcuts and engravings by British teachers.

- ❖ Monochrome woodcut by Ramchand Ray for *Annadamangal*, printed at Ferris Press, Kolkata, and published by Gangakishore Bhattacharya, Kolkata, 1816
- ❖ 'Lakshmi', illustration by Ramdhan Swarnakar from *Nutan panjika*, almanac for BE 1264 (1857-8)
- ❖ End-piece by Madhabchandra Das for *Bangnaye shiyal raja*, printed at the Jnandipak Jantra on Garanhata Street, Kolkata, BE 1274 (1867-8)
- ❖ Illustration by Nrityalal Datta for *Debijuddha*, published by Vidyaratna Press on Upper Chitpur Road, Kolkata, BE 1283 (1876-7)

Battala woodcuts adapted the forms and techniques of the artists of Kalighat who painted paper *pats* on a range of religious and secular themes. Kalighat *patuas* fused diverse strands of Indian art: illuminated manuscripts from Bengal under the Palas, Mughal and Rajput schools of painting, British watercolour and shading.

- ❖ Hand with fresh-water shrimps, Kalighat painting, c. 1880
- ❖ Hand with shrimps, carp and gourd, Battala woodcut, 25 x 28 cm, c. 1880

Woodcut illustrations follow a relief printing process. The surface to be printed stands in relief, while the rest of the block is cut away. A block of soft wood, usually an inch thick, is sawn lengthwise along the grain and planed down. The design is drawn on the block or on a sheet of paper which is glued down on the grained side of the block. The cutter may be different from the artist, specializing in cutting the design with knives, chisels and gouges. This gives a black design against a white background. Parallel hatching and cross-hatching are used to introduce tones, and the finished prints could be coloured by hand.

- ❖ Specimen of Battala woodcut block and print (source P. M. Bagchi & Co., Kolkata)

Wood-engravings are cut with burins and gravers into the end-grain of a block of wood. The result is white lines against a black background or thin black lines. The technique is more effective than woodcuts in producing tones. Wood engravings were the principal means of illustrating nineteenth-century books and newspapers.

❖ Illustration of engraving implements

Woodcuts and wood engravings were used to illustrate Battala titles. Engraving was suited to the smaller size of illustrations while woodcuts could be used to produce single-sheet prints, monochrome or manually coloured, sold exclusively as pictures.

- ❖ Benimadhab Bhattacharya, *Kalighater Kali*, Battala woodcut, 25 x 38 cm, date unknown
- ❖ Nrityalal Datta, *Sakhi nritya*, Battala woodcut, 26 x 39 cm, date unknown
- ❖ Nrityalal Datta, *Circus*, Battala woodcut, 26 x 39 cm, date unknown
- ❖ Engraved illustration from the second edition of Jogendranath Basu, *Kalachand*, printed at the Bangabasi Steam Machine on Kalutola Street, Kolkata, BE 1297 (1900-1). Bangabasi was one of the earliest publishing houses to open a separate section for illustrations with paid artists on the staff.
- ❖ Illustration from the Basumati edition of Bhubanchandra Mukhopadhyay, *Sachitra Dharmaraj*, Kolkata, 1899

Woodcuts and engravings are likely to be damaged on the bed of the press, and are suited for manual printing. For the large print runs demanded by almanacs and advertisements, it is convenient to use facsimile blocks made by stereotype or electrotpe. Battlala publishers used electroblocks or galvanographic replicas in copper alloy of old wood engravings and woodcuts when letterpress machines were introduced in the late nineteenth century.

- ❖ Wood-engraved label for ink manufactured by P. M. Bagchi & Co., Kolkata
- ❖ Display types in Bengali engraved on wood, printed by P. M. Bagchi & Co., Kolkata

Lithography, invented in Munich in 1798 by Aloys Senefelder to print sheet music, reached Kolkata in the early nineteenth century. The process, which printed designs in greased ink or chalk from a slab of wet stone, was introduced in Bengal around 1822 by European artists such as de Savignac, Belnos and Rind. The technique also proved useful in printing maps. On 26 December 1829, *Samachar chandrika* advertised a drawing manual carrying lithographic prints of human and animal figures on 'English' principles. It added that lithos would enable Hindu homes to acquire finer images of gods and goddesses. The first lithographic press owned by Bengalis, the Royal Lithographic Press, was opened by Dinannath Das, Nabinchandra Ghosh, Hiralal Ghosh and Tinkari Majumdar

sometime in the middle of the nineteenth century. They were trained at the School of Industrial Art. Calcutta Art Studio, founded by Annadaprasad Bagchi and his pupils, opened in the 1870s at 185 Bowbajar Street. Since the late nineteenth century, single-sheet lithographs and lithographic book illustrations produced by Bengali studios in the city gained a wide market.

- ❖ Monochrome litho as book illustration: from the fourth edition of Surendramohan Bhattacharya, *Senapatir guptakatha*, published by Narendrakumar Sil, Kolkata, BE 1329 (1822-3)
- ❖ Coloured lithograph from Kansaripara Art Studio, 26 Krishnadas Pal Lane: *Pramodasundari*, 29 x 38 cm, c. 1890
- ❖ Coloured lithograph from Chorbagan Art Studio, 24 Bhuvan Banerjee Lane: *Jugalrup*, 29 x 38 cm
- ❖ Coloured lithograph from Chitrashilpi Company, 265 Bowbajar Street: *Chhinnamasta*, 24 x 31 cm
- ❖ Image on a typical litho used by north Kolkata printing houses

Kolkata printers occasionally used Western illustrations for their books. The blocks could be prepared abroad, or the illustrations could be bought from foreign publications.

- ❖ *Ram abatar* and *Buddha abatar* from Gopalkrishna Ghosh and Loknath Ghosh, *Dash abatar*, Kolkata, 1886. The blocks were made in England.
- ❖ Illustrated page from the magazine *Bibidarth sangraha*, 1851, edited by Rajendralal Mitra, and published by the Vernacular Literature Society, Kolkata. The illustrations were bought from *The Penny Magazine* of England, published by the Society for the Diffusion of Useful Knowledge.

The role of Battala is now performed by a clutch of small publishers in the city and in the district towns, who print chapbooks on all conceivable subjects and sell them on trains, street corners, weekly markets and village fairs. The School of Cultural Texts and Records at Jadavpur University has undertaken a project with budgetary support from the Endangered Archives Programme of the British Library to digitize specimens of these ephemeral productions .

- ❖ Samples of recent street literature and ephemera from the collection of the School of Cultural Texts and Records, Jadavpur University.

Founded by William Jones (1746-94) in 1784, Asiatic Society in Kolkata is the second oldest institution for Asian studies in the world. The Society moved to its present location at 1 Park Street in 1808. The bulk of its collection was shifted to the Indian Museum, established on the Society's suggestion in 1866. Other institutions to have grown out of the Society include Trigonometrical Survey of India (1818), Calcutta Medical and Physical Society (1823), Geological Survey of India (1851), Indian Meteorological Department (1875), Zoological Survey of India (1911), Botanical Survey of India (1912) and Indian Science Congress (1913).

- ❖ Portrait of William Jones (1746-94)
- ❖ Photograph of the Asiatic Society (established 1784)

Early scholars of Indian texts, scripts, epigraphy, manuscripts and languages included Nathaniel Halhed, Henry Thomas Colebrook, Charles Wilkins, J. H. Harington, James Prinsep, William Carey, B. H. Hodgson, Alexander Csoma de Koros, Rajendralal Mitra and Haraprasad Shastri. The Society is known for its rich collection of manuscripts and printed books in Asian scripts and languages. Equally valuable is its contribution to scholarly publishing in India. Its journals and editions of rare texts in such distinguished series as *Bibliotheca Indica* are witness to the vitality of book-printing in multiple languages in late eighteenth- and nineteenth-century Bengal.

- ❖ Title-page from the first volume of *Asiatick Researches or Transactions of the Society Instituted in Bengal*, printed at the Honourable Company's Printing Office, 1788
- ❖ Bengali characters in a Sanskrit passage from the first volume of *Asiatick Researches*, 1788
- ❖ Title-page from the first volume of the *Journal of the Asiatic Society of Bengal*, edited by James Prinsep and printed at the Baptist Mission Press, Kolkata, 1832
- ❖ Title-page from the *Brihadaranyaka Upanishat with the Commentary of Sankaracharya and the Gloss of Anandagiri*, edited by E. Roer for the series *Bibliotheca Indica*, published by the Asiatic Society and printed at the Baptist Mission Press, Kolkata, 1849

Early Bengali printers included writers and editors such as Bhabanicharan Bandyopadhyay (1787-1848). Although conservative, Bhabanicharan was quick to see that the new technology promised to unsettle traditional markers of

privilege. Brahmans need no longer be the readers of sacred texts, nor would writers need to depend on aristocratic patronage. Bhabanicharan hinted at these changes in his prose satire *Kalikata kamalalaya* (1823), but was shrewd enough to assure buyers that at his own press in Kalutola, he had hired Brahman compositors and had the ink mixed with holy water from the Ganga for his edition of *Srimadbhagavat* (1830).

- ❖ Photograph of Bhabanicharan Bandyopadhyay, *Srimadbhagavat*, Kolkata, Chandrika Jantra, 1830, printed in the *puthi* format

The reformist programmes of Rammohan Ray (1772-1833) were radical, not least his ambition to fashion a workable prose for serious public discussions in Bengali. A new public sphere needed a public press. Rammohan published printed material in Arabic, Persian, Bengali, Hindi, Sanskrit and English. He set up his own Unitarian Press around 1823, the same year that he drafted his celebrated *Appeal to the King in Council* against the government ordinance restricting the liberty of the Indian press. Most of his books as also the Persian, English and Bengali periodicals he edited used other printers, including the Baptist Mission and Calcutta School Book Society.

- ❖ Portrait of Rammohan Ray (1772-1833)
- ❖ Title-page from Rammohan Ray, *Hindoo Law of Inheritance*, printed at the Unitarian Press, Kolkata, 1822

Rammohan's work in serious publishing was continued by the Brahmosamaj he founded, and by the printing and publication units of the different factions into which it was later divided.

- ❖ Page from *Tattvabodhini Patrika*, the journal published by Adi Brahmosamaj and printed at its press, Kolkata, BE 1265 (1858-9)
- ❖ Title-page from second edition of *Narishiksha*, published by Bamabodhini Karyalaya on Mirzapur Street, Kolkata, 1884
- ❖ Title-page from the sixth edition of *Pratyahik brahmopasana*, printed at the Brahmosamaj Press, c. 1888
- ❖ Title-page from Keshabchandra Sen, *Brahmogeetopanishat*, published by Brahmo Trust Society, c. 1897
- ❖ Title-page from Rabindranath Thakur, *Oupanishad brahma*, printed at the Adi Brahmosamaj Press, BE 1308 (1901-2)
- ❖ Preface to Prashantachandra Mahalanobish, *Brahmo bibaha bidhi*, published by Vidyodaya Press, Kolkata, 1916
- ❖ Page from *Boalia Brahmosamajer prarthana o upadesh*, printed at the Nutan Sanskrita Jantra, Kolkata, 1926

Initiatives in scholarly publishing were not restricted to commercial publishers, learned societies, writers and editors. Lexicographers, encyclopedists and classical scholars also turned printers, with rich and learned patrons joining or funding their enterprise, in nineteenth-century Bengal.

- ❖ Page from the Hitabadi Press edition of *Shabdakalpadruma*, the Sanskrit dictionary compiled by Radhakanta Deb, Raja of Sabhabajar, and edited by Karunasindhu Vidyanidhi. The book was published in 8 volumes between 1819 and 1858.
- ❖ Title-page and sample of bilingual printing from the first of the 13 parts of *Vidyakapladruma or Encyclopaedia Bengalensis*, edited by Reverend Krishnamohan Bandyopadhyay, and published by Ostell & Lepage and P. D'Rozario & Co., Kolkata, 1846
- ❖ Title-page from the first of the 22 volumes of the Bengali encyclopedia *Vishvakosh*, edited by Rangalal Mukhopadhyay and Trailokyanath Mukhopadhyay, 1886. Rangalal Mukhopadhyay, a physician and school teacher, bought a press in Birbhum for printing the *Vishvakosh*. He sold the press and the rights to the encyclopedia to Nagendranath Basu after editing parts of the second volume with his brother, the writer Trailokyanath.
- ❖ Title-page from the first edition of *Mahabharatam*, Bhishmaparba, translated and edited by Haridas Siddhantabagish, published by Siddhanta Vidyalaya and printed at Siddhanta Jantra on 41 Suri Lane, Kolkata, BE 1343 (1936-7). The publishing house and press were founded by Siddhantabagish himself.

The most instructive instance of the close links between literature, social activism, scholarship and print culture is the career of Ishwarchandra Vidyasagar (1820-91). Author, social reformer, professor, scholar and translator, Vidyasagar set up his own press, Sanskrita Press and Depository, in 1847-8. He had to reform the Bengali alphabet, reduce the size and rationalize the lay of the Bengali case before his educational books could be printed and sold in bulk. The parts of his Bengali primer *Barnaparichay* (1855) had over 150 editions and sold more than 3 million copies in his lifetime.

- ❖ Portrait of Ishwarchandra Vidyasagar (1820-91)
- ❖ Title-page from *The Infant Teacher*, Ishwarchandra Vidyasagar's text-book for girls' schools, printed at the author's Sanskrita Press, Kolkata, 1851
- ❖ Title-page from the fifth edition of Ishwarchandra Vidyasagar, *Jiban charit*, printed and published by Sanskrita Press, Kolkata, 1857
- ❖ Title-page from *Bhrantibilas*, Ishwarchandra Vidyasagar's Bengali adaptation of Shakespeare's *A Comedy of Errors*, published and printed by Sanskrita Press, 1869
- ❖ Page from *Letter to Babu Ishwar Chandra Bidyasagor on Bengali Typography* by

John Murdoch, Agent of the Christian Vernacular Education Society, Kolkata
1865

The formation of an educated reading public for serious Bengali publications was the professed aim of the group of writers around the great novelist Bankimchandra Chattopadhyay (1838-94). Their flagship journal *Bangadarshan* (started 1872) used to be printed at Bhabanipur in Kolkata. But in 1873, Bankimchandra decided to install a press at his residence at Kanthalpara in Naihati.

- ❖ Portrait of Bankimchandra Chattopadhyay (1838-94)
- ❖ Page from volume 4 of *Bangadarshan*, 1877

An academy of literature along the lines of the French Academy was proposed by civilian and linguist John Beames in 1872. Bengal Academy of Literature was founded on 23 July 1893 in Kolkata under the patronage of Binaykrishna Deb of Sabhabajar. Renamed Bangiya Sahitya Parishat in April 1894, it moved to its present location at 243/1 Acharya Praphullachandra Road in December 1908 on a plot gifted by the public benefactor and book-collector Manindrachandra Nandi, Raja of Kashimbajar. Historian, novelist and bilingual author Rameshchandra Datta was the first President, and the poets Rabindranath Thakur and Nabinchandra Sen Vice Presidents. Its initial aims were preparing a Bengali dictionary and grammar, regularizing Bengali technical terms, collecting and publishing old manuscripts, translating important works into Bengali, fostering the study of history, philosophy and science in Bengali, and publishing a journal. The Parishat at present houses a library, a collection of manuscripts, a museum and a publishing unit. The Parishat has published rare and important literary texts in Bengali, and has compiled a five-volume Bengali encyclopedia.

- ❖ Page from the first volume of the transactions of Bengal Academy of Literature
- ❖ Page from the first number of the second part of *Sahitya Parishad patrika*, BE Baishakh, 1302 (1895)
- ❖ Title-page of *Bouddhagan o doha*, edited by Haraprasad Shastri, published by Bangiya Sahitya Parishat, BE 1323 (1916). The volume printed for the first time manuscript verses from *Charyacharya binishchaya* as the earliest samples of proto-Bengali.
- ❖ Reproduction of *puthi* leaves from the *Charyacharya binishchaya* in *Bouddhagan o doha*, edited by Haraprasad Shastri, published by Bangiya Sahitya Parishat, BE 1323 (1916).

The efforts of learned societies and scholar-printers led to regulation of production standards and improvement in quality.

- ❖ Title-page from Biharilal Ghosh, *Printer's Guide*, the standard manual for Bengali printing for many years, published by B. L. Ghosh & Co., Kolkata, BE 1293 (1886-7)
- ❖ Illustration from Goshtabihari De, *Printer's Guide*, a Bengali manual published by the Eastern Type Foundry and Oriental Printing Works, Kolkata, 1948, showing the lay of the Bengali case
- ❖ Title-page from Dinabandhu Mitra, *Nil darpan*, printed at the Bangala Jantra, Dhaka, 1860
- ❖ Title-page from the second edition of Michael Madhusudan Datta, *Chaturdashpadi-kabita*, printed and published by Ishwarchandra Basu at the Stanhope Press, Kolkata, BE 1275 (1868-9)
- ❖ Facsimile of Michael Madhusudan Datta's sonnets from the second edition of *Chaturdashpadi-kabita*, printed and published by Ishwarchandra Basu at the Stanhope Press, Kolkata
- ❖ Page from Sourindramohan Thakur, *A Few Lyrics of Owen Meredith Set to Hindu Music*, printed at the Stanhope Press, Kolkata, 1877

Bengal remained a major centre of printing in languages other than Bengali and English throughout the nineteenth century.

- ❖ Title-page from Mirza Abu Taleb Khan, *Travels in Europe and Asia*, printed at the Hindoostanee Press, edited and published by Mirza Hasim Ali and Mir Kudrat Ali, Kolkata, 1812
- ❖ Page from a Kanpur reprint (c. 1850-60) of Sheikh Sadi, *Bustan*, originally printed in Kolkata in the nineteenth century. The book is printed in the manner of a manuscript, with calligraphy by the Kolkata scribe Sheikh Qadir Ali. The larger letters are in Arabic, with publication data in smaller Persian characters.
- ❖ Title-page from *Urdooguide*, vol. 25, no. 51, 1882, edited by Kabiruddin Ahmed, and published from Munshi Deodar Baksh Lane, Kolkata
- ❖ Page from *Akhbar-i-darus sulatanat*, 1882

The shift to a Western-style curriculum in the early years of the nineteenth century led to the founding of such associations as Calcutta School Book Society (established 1817). Supplementing the work begun by Fort William College and the Baptists of Shrirampur, the Society commissioned educational texts or had them translated. Between 1818 and 1854, it printed 363,748 copies of educational texts in Bengali, in addition to English and bilingual titles. Some of these were printed at the Mission Press in Shrirampur or Kolkata, others at the press run by the Society. These efforts were supplemented by associations such as the Vernacular Literature Committee (established 1851), and commercial publishers throughout Bengal.

- ❖ Title-page from Tarachand Datta, *Manoranjanetihas*, published by Calcutta School Book Society and printed at the Mission Press, Kolkata, 1819
- ❖ Title-page from the Bengali encyclopedia *Vidyaharabali*, Book 1, printed at the Mission Press, Kolkata, 1820
- ❖ Title-page from William Yates, *Padarthavidyasar*, published and printed by Calcutta School Book Society, Kolkata, 1825
- ❖ Title-page from *Olauthar bibaran*, a description of cholera morbus, published and printed by Calcutta School Book Society, Kolkata, 1826
- ❖ Title-page from *Niti katha*, Part 2, 'reprinted' at the Chandrodaya Press, Shrirampur, 1841. The publisher's mark (SCDP standing for Shrirampur Chandrodaya Press) imitates that of Calcutta School Book Society, in an obvious attempt to dupe buyers.
- ❖ Page from *Abhidhan*, a Bengali dictionary for use in schools, published and printed by Calcutta School Book Society, Kolkata, 1849
- ❖ Title-page from the 1859 edition of *Streeshikshavidhayak*, published and printed by Calcutta School Book Society, Kolkata
- ❖ Title-page from *Marmet*, a translation by Madhusudan Mukhopadhyay, published by the Vernacular Literature Committee and printed at the Tattvabodhini Press, Kolkata, 1857
- ❖ Title-page from Madhusudan Mukhopadhyay, *Sushilar upakhyay*, Part 2, a text book for schoolgirls published by the Vernacular Literature Committee and printed at the Vidyaratna Press, Kolkata, 1859

Calcutta School Book Society reported in 1826 that they were opening 'a retail shop near the Hindoo College' to enable students 'of various institutions of native education in Calcutta' to buy books. With the exception of Calcutta Madrasa (established 1781), most of the major institutions of learning such as Presidency College (formerly Hindu College; established 1817), Sanskrit College (established

1824), Calcutta Medical College (established 1835), Calcutta University (established 1857), and a number of schools were located in and around College Street. These provided a ready market for educational texts.

- ❖ Photograph of Sanskrit College (1824)
- ❖ Photograph of Calcutta Medical College (1835)
- ❖ Photograph of Calcutta University (1857)
- ❖ Photograph of Presidency College (moved to College Street site 1874)

There were a few presses nearby, such as the distinguished Stanhope Press on Bowbazar Street. But there were only two bookshops on the street in 1874, the year Presidency College moved to its present campus. In 1886 there were seven, the oldest perhaps being S. K. Lahiri's establishment; in 1899 the number had jumped to 36. By the end of the nineteenth century, the focus of the book trade shifted from the Battala region to College Street. Vidyasagar was one of the most successful publishers of educational texts from the Pataldanga-Mirzapur area, although other regions produced texts for an expanding market.

- ❖ Illustration of the brain from Radhanath Basak, *Sharirtattvasar*, printed at the Vidyaratna Press on Upper Circular Road, Kolkata, BE 1270 (1863-4)
- ❖ Title-page from Jadunath Mukhopadhyay, *Bisuchika roger chikitsa*, a book on the treatment of Asiatic cholera, published and printed by Chikitsaparakash Press, Chuchura, BE 1279 (1872-3)
- ❖ Illustration of method for filtering drinking water from the fourteenth edition of Radhikaprasanna Mukhopadhyay, *Swasthya-raksha*, a book on the principles of hygiene, published by Sanskrit Press Depository on Mirzapur Street, and printed at J. G. Chatterjee & Co.'s Press on Amherst Street, Kolkata, 1879
- ❖ Title-page from Gopallal Mitra, *Bharatbarsher itihas*, a translation commissioned by the Committee of Public Instruction printed at the Anglo-Indian Press in Chorbagan, Kolkata, 1840
- ❖ Title-page from the second edition of *Rasselas*, translated by Tarashankar Tarkaratna, and published and printed by Sanskrita Press, Kolkata, 1864
- ❖ Page from Jogeshchandra Ray Vidyanidhi, *Prakrit bhugol*, published by Indian Depository on College Street and printed at Sakha Press, Kolkata, 1902
- ❖ Title-page from the second part of Gurudas Bandyopadhyay, *Saral ganit*, published by S. K. Lahiri, Kolkata, 1914

The railways came to Bengal in 1855. It would soon change the way books were transported and distributed. Steam-driven paper mills and steam-powered cylinder printing machines would also make bulk production easier. William Carey imported the first steam-driven engine in 1820. The engine was manufactured by Thwaite Hick and Rothwells of Lancashire, and used for the paper mill in Shrirampur. In 1828, Golakchandra, a blacksmith from Titagarh, exhibited a steam engine made entirely by himself.

- ❖ Title-page from Akshaykumar Datta's directions for railway travellers, *Bashpiya ratharohidiger prati upadesh*, printed at the Tattvabodhini Sabha Jantra, Saka Era 1776 (1855-6)
- ❖ Cover illustration from *Pujor chhuti*, published in Kolkata by East Indian Railway, Kolkata, 1928
- ❖ The railway station at Howrah: illustration from second volume of *Banglay bhraman*, second edition, published by Eastern Bengal Railway and printed at the East Indian Railway Press, Kolkata, 1940
- ❖ Photograph of a mechanical cylinder press from the second edition of Goshthabihari De, *Printer's Guide*, a Bengali manual published by the Eastern Type Foundry and Oriental Printing Works, Kolkata, 1948

Photography reached Bengal in the mid 1840s. The process camera for reproducing illustrations using the halftone process was introduced towards the end of the nineteenth century. Between 1897 and 1912, the artist and writer Upendrakishore Raychaudhuri (1863-1915) published nine papers in *Penrose Annual* on the halftone process. He invented the screen adjustment indicator, and the 60 degree cross-line screen for coloured halftones. Upendrakishore had established his press U. Ray at 38/1 Shibnarayan Das Lane, Kolkata in 1895. The firm, later renamed U. Ray & Sons, moved to 100 Garpar Road, Kolkata, from where it turned out process engraved illustrations of high quality. The work of major Indian painters carried in the magazines *Prabasi* and *Modern Review* were often reproduced from blocks made by U. Ray. Experiments at the firm continued under his son Sukumar Ray (1887-1923), the great children's writer who published two papers on the halftone process in *Penrose Annual*. The techniques came to be widely used in the earlier twentieth century for illustrating books.

- ❖ Portrait of Upendrakishore Raychaudhuri (1863-1915)

- ❖ Drawing of U. Ray & Sons. by Upendrakishore's grandson Satyajit Ray
- ❖ Screen adjustment indicator developed by Upendrakishore Raychaudhuri: from the fourth edition of J. Verfassung, *The Halftone Process*, 1907
- ❖ Illustration by Upendrakishore Raychaudhuri for his *Tuntunir boi*, published in Kolkata, BE 1317 (1910-11)
- ❖ Caption for an article by Upendrakishore Raychaudhuri published in the *Journal of the Photographic Society of India*
- ❖ Portrait of Sukumar Ray (1887-1923)
- ❖ Cover illustration by Sukumar Ray for *Sandesh*, vol. 4, no. 8, BE 1323 (1916)
- ❖ Illustration of spider from *Sandesh*, vol. 4, no. 8, BE 1323 (1916)
- ❖ Government House, halftone illustration from W. K. Firminger, *Thacker's Guide to Calcutta*, published by Thacker, Spinck & Co., Kolkata, 1906
- ❖ Halftone reproduction of a photograph from *Shobha*, an album compiled by the artist Bhabanicharan Laha, published by Basumati Sahitya Mandir, Kolkata, 1926. Narendranath Deb selected poems by Rabindranath Thakur to go with the photographs of the artist's models.
- ❖ Halftone illustration from Narendranath Chattopadhyay, *Bar-kane*, published by Deb Sahitya Kutir, Kolkata, 1928. The block was prepared by Cornwallis Studio, Kolkata.
- ❖ Illustration by Girindrashekhara Basu for his children's book *Lal-kalo*, printed at Prabasi Press and published by Brajendranath Bandyopadhyay, Kolkata, 1930. The author pioneered psychoanalytic research in India and corresponded with Sigmund Freud.

The periodical press flourished with improvements in technology and the onset of the nationalist movement. By the early years of the twentieth century, periodicals in Bengali were being published throughout the province.

- ❖ Page from *Sarbashubhakari patrika*, vol. 1, no. 4, 1855, published from Mirzapur, Kolkata, and printed at Sucharu Jantra, Kolkata. The magazine was published by Vidyotsahini Sabha, a society led by Kaliprasanna Singha. An article testifies to the growing nationalist sentiments in Bengal.
- ❖ Page from the first number of *Nabyabharat*, edited by Debiprasanna Raychaudhuri and printed at the Victoria Press, Kolkata, 1883
- ❖ The list of contributors to the first volume of *Nabajiban*, edited by Akshaychandra Sarkar and printed and published by Sadharani Press on Mirzapur Street, Kolkata, BE 1291 (1884-5)
- ❖ Page from *Pradip*, vol. 2, no. 4, 1899, showing portrait of Ramendrasundar Tribedi
- ❖ Page carrying essay by Swami Vivekananda from *Udbodhan*, vol. 1, no. 3, 1899. The journal was started in Bagbajar, Kolkata, by Swami Vivekananda
- ❖ Page from the second number of *Sakhi*, one of the earliest magazines in Bengali for women, published in Kolkata, 1900. The halftone reproduction of Queen

Victoria's portrait was made by Kuntaline Press of Hemendrakumar Basu, Kolkata

- ❖ Page showing Bengali text in Devanagari characters from *The Dawn and Dawn Society's Magazine*, new series, vol. 3, no. 4, December 1906. The English magazine, started as *The Dawn* in 1897 by Satishchandra Mukherjee, was now a bilingual published from its office on Bowbazar Street, Kolkata
- ❖ Page from a 1908 number of *Ekata*, the weekly published by the Printers' Union
- ❖ Pages with coloured portrait of Ramakrishna Paramhansa from the first number of *Masik Basumati*, 1921. Edited by Hemendraprasad Ghosh and published by Basumati Sahitya Mandir, the magazine was printed on the company's electrical printing machine on Bowbazar Street
- ❖ Page showing musical score prepared by Mohini Sengupta for a song praising Bengal in *Bangabani*, vol. 1, no. 4, 1922. The magazine was edited by Bijaychandra Majumdar and Dineshchandra Sen, and published from Kolkata
- ❖ Page from *Narayan*, vol. 8, no. 6, 1923, showing Sharatchandra Chattopadhyay's article on Mahatma Gandhi. The magazine was started by the nationalist leader and poet Chittaranjan Das
- ❖ Page from the second number of *Shrihatta suhrid*, printed at Kazirbajar, Shrihatta (Sylhet), 1889
- ❖ Page from *Shrihatta darpan*, vol. 2, no. 1, published from Shrihatta, 1900
- ❖ Page showing halftone reproduction of a photograph of the historian Radheshchandra Sheth from the first number of *Gambhira*, BE 1321 (1914). The bimonthly magazine was published by Krishnacharan Sarkar from Kaligram, Malda
- ❖ Cover from the BE Magh 1327 (1922) number of *Prabasi*, edited by Ramananda Chattopadhyay, and published from its office on Cornwallis Street, Kolkata

Technical improvements also helped the printing of illustrated children's books and magazines. Their numbers increased since the late nineteenth century, and there were many such publications in addition to the outstanding ones printed by Upendrakishore Raychaudhuri's press.

- ❖ Page carrying poem by Rabindranath Thakur from the first number of *Balak*, a children's magazine edited by Jnadanandini Debi, printed and published by Adi Brahmosamaj Press, Kolkata, BE 1292 (1885)
- ❖ Page from the first number of *Sakha*, a children's magazine started in Kolkata in 1883
- ❖ Illustration by Dakshinaranjan Mitra Majumdar from the second edition of his *Thakurmar jhuli* (first published 1907), the classic collection of Bengali fairy tales. The edition was published from College Street, Kolkata, by Bhattacharya & Sons. The wood-engravings were prepared by Priyagopal Das
- ❖ Page showing engraved illustration of birds from *Toshini*, vol. 3, no. 2, 1912, a children's magazine edited by Anukulchandra Shastri, and published and printed by Shanti Press, Dhaka

Among the poets, playwrights, artists and composers of the Thakur (or Tagore) family of Jorasanko, there were a few outstanding illustrators, designers and printers. The family edited and published periodicals, and was involved with the publishing projects of the Brahmosamaj.

- ❖ Title-page from a number of *Tattvabodhini patrika*, edited by Rabindranath Thakur and printed at the Adi Brahmosamaj Press, Kolkata
- ❖ Title-page from *Bharati*, edited by Rabindranath Thakur, and published and printed by Adi Brahmosamaj Press, 1899
- ❖ Page from the first number of the new series of *Bangadarshan*, edited by Rabindranath Thakur, and published by Majumdar Library, Kolkata, 1901

The early publications of Rabindranath Thakur (1841-1941) were from Kolkata, several of them printed at the Adi Brahmosamaj Press. These conform to the conventions of the respectable publishing and printing houses of the late nineteenth century.

- ❖ Portrait of Rabindranath Thakur (1861-1941) from *Rabichchhaya*, a book of songs published by Jogendranarayan Mitra, Kolkata, and printed at the Sadharan Brahmosamaj Press, 1885
- ❖ Title-page from the first edition of *Kabi-kahini*, the earliest of Rabindranath's books, published by Prabodhchandra Ghosh and printed at the Saraswati Jantra, Kolkata, 1878
- ❖ Title-page from the first edition of *Bana-phul*, published by Matilal Mandal and printed at Guptapress, Kolkata, BE 1286 (1879-80)
- ❖ Title-page from *Sandhya sangit*, published and printed by Adi Brahmosamaj Press, Kolkata, 1880
- ❖ Title-page from *Bouthakuranir hat*, published and printed by Adi Brahmosamaj Press, Kolkata, 1883
- ❖ Title-page from *Bhanusingha Thakurer padabali*, published by Rabindranath Thakur, and printed at the Adi Brahmosamaj Press, Kolkata, BE 1291 (1884-5)
- ❖ Title-page from *Chitthipatra*, published by S. K. Lahiri & Co., Kolkata, 1887

In 1917, Rabindranath brought over to Shantiniketan a platen press, gifted to him in Lincoln during his visit to the United States. The type and cases were bought from Barnhart Brothers and Spindler in Omaha, Nebraska. The following year, the poet asked Sukumar Ray to train Shantiniketan students in printing. This step would lead to the founding of the university press and publication unit of Visva Bharati (with its main office in Kolkata) in 1923. Visva Bharati

books, the broad principles of which were framed by Rabindranath, set future standards for Bengali publications in rigorous editing and austere design. At the same time, Rabindranath introduced his own preferences in format, illustration and design.

- ❖ Photograph of the press gifted to Rabindranath at Lincoln, USA, Lincoln, Nebraska
- ❖ Photograph of plate recording the gift of the press from the people of Lincoln to the boys of Shantiniketan
- ❖ Photograph of a compositor at the Shantiniketan Press
- ❖ Photograph of an imposed forme at the Shantiniketan Press
- ❖ Title-page from *Gita-panchashika*, the first book to be printed at the Shantiniketan Press, Shantiniketan, 1918.
- ❖ Title-page from *Gita-bithika*, printed by Jagadananda Ray at the Shantiniketan Press, Shantiniketan, 1919
- ❖ Title-page from the first edition of *Arupratan*, published by Chintamani Ghosh and printed in the oblong format of a playbill by Jagadananda Ray at the Shantiniketan Press, Shantiniketan, 1919
- ❖ Preface and title-verso from *Ingreji sahaj shiksha*, a primer for learning English, printed by Jagadananda Ray at the Shantiniketan Press, Shantiniketan, 1930
- ❖ Rabindranath's illustration for the first edition of *She*, printed at the Shantiniketan Press, Shantiniketan, BE 1344 (1937-8)
- ❖ Jaminiprakash Gangopadhyay's illustration for *Sharodotsab*, published by Indian Publishing House, Kolkata, and printed in the *puthi* format at the Kantik Press, Kolkata, 1908. The blocks for the illustrations were prepared at the Kuntaline Press, Kolkata.
- ❖ Page from the first number of *Visva Bharati patrika*, edited by Pramatha Chaudhuri, 1942, showing Abanindranath Thakur's article on Indian art with drawing by Rabindranath

Rabindranath had a conflicted attitude toward the printed book. He would compare the printed word with ideas imprisoned in ink and paper, and yet longed to use printing as a means of self-expression. In 1926, while on a trip to Germany, he learnt from Prashantachandra Mahalanobish of the Rotar Press machine that impressed facsimiles from aluminium sheets. He bought the machine and sought to reconcile the technology of print with the presence of the writing hand in *Lekhan*, a collection of short verses printed in Budapest. A similar collection of autograph pieces was printed at the Gouranga Press, Kolkata, in 1945.

- ❖ Page from *Lekhan*, printed and published in Budapest, BE 1334 (1927)
- ❖ Page with Rabindranath's illustration from *Sphulinga*, published by Visva Bharati, Kolkata, and printed at the Gouranga Press, Kolkata, 1945

The nationalist mobilization that began in 1905 led to the production on a mass scale of books and periodicals in Bengali and other languages in the earlier part of the century. Indigenous enterprise and scientific research also accounted for a large number of publications from College Street and elsewhere.

- ❖ Title-page from *Title na bhikkhar jhuli?*, a farce by Surendranath Bandyopadhyay, published by Valmiki Jantra, Kolkata, BE 1296 (1889-1900)
- ❖ Title-page from the 1948 edition of *Bande mataram*, compiled by Jogindranath Sarkar, published by City Book Centre on College Street, Kolkata, and printed at the Satyanarayan Press on Beadon Row, Kolkata. First published in September 1905, it had nine editions in twelve months. The introduction to the collection was written by Sakham Ganesh Deuskar.
- ❖ Title-page from K. K. Chatterjee, *Syphilis in General Practice*, published by Butterworth & Co., Kolkata, 1920. The book was published simultaneously from London and Sydney.
- ❖ Title-page from the second edition of Akhilranjan Majumdar, *Modern Pharmacology and Therapeutic Guide*, published by the Book Company Ltd., Kolkata, 1930
- ❖ Title-page from the twelfth edition of Rakhaldas Ghosh, *A Treatise on Materia Medica and Therapeutics*, revised by Birendranath Ghosh, published by Hilton & Co., Kolkata, 1932
- ❖ Page showing graph from *Sankhya*, vol. 1, 1933, edited by Prashantachandra Mahalanobish, and published by the Statistical Laboratory, Presidency College, Kolkata. The journal was printed at the Art Press on British Indian Street, Kolkata.
- ❖ Title-page from the second volume of Praphullachandra Ray, *Life and Experiences of a Bengali Chemist*, published in Kolkata by Chuckervertty, Chatterjee & Co., and in London by Kegan Paul, Trench, Trubner & Co., 1935

The modernist movement in the arts produced *avant garde* periodicals that made creative use of the new developments in reprographic technology. Distinguished literary periodicals in Assamese, Hindi, Maithili, Oriya, Punjabi, Sanskrit, Urdu and other Indian languages were printed and published in Kolkata. However, periodicals in Bengali and English were better placed to take advantage of technical innovations. The market for printed books and periodicals shrunk after the partition of Bengal in 1947. Emerging media such as the radio and cinema provided serials with new themes.

- ❖ Title-page from the first number of *Sabuj patra*, 1914, a literary journal edited by Pramatha Chaudhuri and published from Kolkata

- ❖ Table of contents from *Kallol*, vol. 2, 1924, a literary journal edited by Gokulchandra Nag and Dineshranjan Das, and published from Kolkata
- ❖ Title-page from *Parichay*, vol. 1, no. 2, 1932, a literary journal edited by Sudhindranath Datta and published from Kolkata
- ❖ Table of contents from the Magh 1381 (1975) number of *Krittibas*, a literary journal edited by Sunil Gangopadhyay
- ❖ Page from the first number of *Manjusha*, a Sanskrit monthly edited by Kshitishchandra Chattopadhyay, and published from Bagbajar, Kolkata, 1935
- ❖ Page from the *Sundaram*, vol. 3, no. 3, BE 1365 (1958-9), an art journal edited by Subho Thakur and published from Kolkata
- ❖ Page from *Betar jagat*, vol. 30, no. 19, 1959, published by All India Radio, Kolkata
- ❖ Photographs of screen heroines from *Batayan*, Christmas and New Year number, Kolkata, 1936

Experiments in illustration were helped by improvements in reprographic techniques, especially in process engraving. At the same time, modernist experiments in literature inspired innovative book designs.

- ❖ Illustration of crocodiles from Jagadananda Ray, *Machh byang sap*, a book of popular science, published by Indian Press, Kolkata, BE 1330 (1923-4). The illustrations were done by Binodebihari Mukhopadhyay and Dhriendrakashna Debsharma under Nandalal Basu's supervision. The reproduction is from the third edition of 1953 printed at the Varanasi branch of Indian Press.
- ❖ Illustration and page lay-out designed by Nandalal Basu for the 1974 edition of Rabindranath Thakur, *Nataraj riturangashala*, published by Visva Bharati, Kolkata, and printed at Tapasi Press, Kolkata. The illustrations were first published in 1927 in the first number of the magazine *Bichitra*.
- ❖ Illustration by Jatindrakumar Sen for *Kajjali*, a collection of stories by Parashuram (Rajshekhar Basu), published by M. C. Sarkar & Sons, Kolkata, 1927
- ❖ Woodcut design by Satyendranath Bishi published in the magazine *Baishakhi*, BE 1350 (1943-4)
- ❖ Cover design by Indu Rakshit for *Biday arati*, Satyendranath Datta's book of verse, published by R. H. Shrimani & Sons, Kolkata, and printed at the New Mahamaya Press, Kolkata, 1937
- ❖ Cover design by Abanindranath Thakur for *Budo angla*, his book for children published by M. C. Sarkar & Sons, Kolkata, 1941
- ❖ Title-name, using multiple typefaces, from the cover design by Satyajit Ray for Sudhindranath Datta's book of verse, *Orchestra*, published by Signet Press, Kolkata, 1954
- ❖ Cover illustration by Jamini Ray for Bishnu De's book of verse, *Smriti satta*

- bhabishyat*, published by Sambodhi Publications, Kolkata, and printed at Sambodhi Mudran, Kolkata, 1963
- ❖ Illustration by Purnendu Patri, recalling the techniques of Kalighat paintings and Battala woodcuts, for Kalyani Datta, *Thor bari khara*, published by Thema, Kolkata, 1992
 - ❖ Illustration by K. G. Subramaniam from his book for children *How Hanu Became Hanuman*. First published by the Faculty of Fine Arts, Maharaja Sayajirao University, Vadodara, this edition, published by Seagull in 1996, was printed in Kolkata by Laurens & Co.
 - ❖ Illustration by Krishnendu Chaki for *Shree Shree Lakshmi debir panchali*, edited by Biman Singha and Prabir Sen, 2005. Published by Prakriti, Kolkata, one hundred copies of the book were printed on hand-made paper at Fawn & Co., Kolkata, and hand-stitched.

In the nineteenth century, Abinashchandra of Páthuriaghata had attempted to manufacture an indigenous printing machine. The need for progress in indigenous technology co-incided with the priorities of the nationalist project, as Jogendranath Ghosh argued in a lecture on Bengali printing at the Jatiya Sabha. Innovations, however ingenious, could also be allied to a distaste for alien reading habits. Haripada Chattopadhyay had printed religious books on palm-leaves at his press in Kalyanpur, Howrah (and later Kolkata) earlier in the century. But not all indigenous experiments were so eccentric. The Bengali typewriter was introduced in 1919, Bengali linotype in 1935, and Bengali monotype in 1939.

- ❖ Title-page from Jogendranath Ghosh, *Bangala mudrankaner itibritta o samalochan*, published by Nutan Bangala Jantra, Kolkata. The essay was delivered as a lecture at the Jatiya Sabha on 4 July 1870.
- ❖ Specimen of Bengali text produced on typewriter with keyboard designed by Satyaranjan Majumdar of Dhankura. The text was reproduced in the Jaishtha 1326 number of *Prabasi* (1919). Ganadeb Ganguly had tried to produce a Bengali keyboard for Remington in the first decade of the twentieth century.

The linotype process relies on mechanical composition. The characters are typed on a keyboard, releasing the corresponding matrices from a magazine to form a sequence of characters and spaces. The line is composed as molten metal is injected from a crucible to form a solid line of type, known as a slug. The linotype machine had the advantage of being its own foundry, although the process restricted the kerning of letters in Bengali and other Indian languages.

- ❖ Sureshchandra Majumdar's article in *Anandabajar patrika*, 25 September 1935, on the principles of Bengali linotype printing. Sureshchandra reformed Bengali

conjuncts to make characters suit the linotype matrix. He was advised by the writer and chemist Rajshekhar Basu.

- ❖ Photograph of the linotype machine at the Baptist Mission Press, Kolkata
- ❖ *Anandabajar patrika* from 1973 showing use of Linotype Bengali hot-metal fonts
- ❖ Hot-metal specimen of Linotype Bengali Bold at 10 pt.
- ❖ Hot-metal specimen of Linotype Bengali no. 2 with bold face no. 2: list of characters in the fount
- ❖ Linotype keyboard lay-out for *Anandabajar patrika* developed by Mergenthaler Linotype Company, 14 July 1949
- ❖ 90-channel keyboard diagram for Linotype Bengali

Monotype composition uses two machines, the keyboard and the caster. The characters typed on the keyboard punch holes in a sheet of perforated paper. The holes act as cipher for the copy and transfer the coded text to the caster. In the caster, the punched holes let in compressed air that positions the appropriate matrix over the casting mould. The monotype process casts types separately, making correction and kerning easier. The first monotype keyboard and characters for Bengali were developed in 1937, made from types provided by the Kolkata office of Monotype Corporation. The types were made for the Kolkata printer H. L. Majumdar and used at Oxford and Cambridge. Suhrid Chakrabarti is credited with designing the first Bengali monotype characters used in the state.

- ❖ Photograph of monotype caster at the Baptist Mission Press, Kolkata.
- ❖ Lay-out of monotype keyboard for Bengali

Hot-metal letterpress technology dominated printing houses late into the twentieth century, although phototypesetting and offset printing were introducing radical changes in its latter half. At the same time, Kolkata presses were producing fine non-industrial samples of photogravure and lithographic printing. Folding, cutting and binding came to be mechanized, although many publishers still stick to older methods.

- ❖ Specimens of Bengali typefaces used in the 1960s by Lalchand Roy & Co., Kolkata
- ❖ Bengali scalable font from *Bangtex-A Package for Typesetting Documents in Bangla Using the Tex/Latex Systems*, designed for computerized composition designed by Palashbaran Pal, 2001 (<http://tnp.saha.ernet.in/~pbpal/bangtex/bangtex.html>)
- ❖ Photograph of a sheet-fed gravure machine
- ❖ Two pages from Ashok Ghosh, *Mudran bisharad*, published by Swakshar, Kolkata, 1955, a manual of book production written for young readers, illustrating manual sewing, rounding and case-making

- ❖ Eleventh edition of *The Bhagavad-Gita*, transcreated by P. Lal, hand-stitched in handloom sari cloth by Tulamiah Mohiuddin, and published by Writers Workshop, Kolkata, 2004. The calligraphy is by P. Lal.
- ❖ Photograph of a quad folding machine

At present, book printing in even smaller presses employ digital technology and computerized page-making. Some samples of designs for Bengali digital fonts developed by Linotype-Hell AG are preserved in the Department of Typography and Graphic Communication, University of Reading.

- ❖ *Anandabajar patrika* from 1983 using Linotype Bengali digital fonts
- ❖ Typefaces from Linotype-Hell; Indian PostScript Faces: Linotype Bengali Light and Bold
- ❖ Drawing of Bengali vowel sign: pencil on film
- ❖ Bengali Bold 12 pt drawing-mask on film
- ❖ Transparency copy of inked drawing of Bengali digital typeforms
- ❖ Transparency copy of inked drawing of Bengali vowel sign
- ❖ Transparency copy of inked drawing of Bengali vowel sign
- ❖ Digiplot of conjoined Bengali consonants
- ❖ Inked letter-drawing of conjoined Bengali consonants
- ❖ Hand-cut rubylith frisket of ligature 'Shri'
- ❖ Drawings by Tim Holloway on tracing paper of kerning Bengali vowel signs
- ❖ Bromide output of Linotype Bengali Light Conjoint Table, PostScript
- ❖ Bromide output of Linotype Bengali Light Justified Text 36 pt, PostScript

Electronic publishing and marketing started in Bengal in the 1990s. At present there are popular sites for poetry, little magazines and marketing.

- ❖ Electronic publishing: from <http://bangla.verdantdreams.com/kabita.html>
- ❖ Electronic publishing: from <http://www.srishtisandhan.com>
- ❖ Electronic publishing: from http://www.oxfordbookstore.com/oxfordonline/services/e_author
- ❖ Electronic marketing: from <http://www.anandapub.com/>

In the nineteenth and early twentieth centuries, a distinctive script was developed in the Barak-Surma valley in the north-east of the Indian subcontinent. It was an alternative script for the Bengali language as spoken in the region, primarily by Muslims in the countryside. By the twentieth century the script, known as Sylhet Nagri, was in wide use in rural Shrihatta (Sylhet), Kachar and the adjoining Bengali-speaking region. Between 1860 and 1870 the script was standardized by Moulavi Abdul Karim, a cleric and minor poet, who learnt the art of printing on a trip to Europe. On his return, he designed wood blocks for the Sylhet Nagri alphabet. Texts in Sylhet Nagri were printed at the Islamia Press in Shrihatta, and at the General Printing Press and Hamidi Press in Kolkata. Sylhet Nagri is a rare instance of an Indian script which had its printed characters designed and its publishing organized through indigenous enterprise. Sylhet Nagri texts are known as *puthis*, and open back-to-front with the spine to the right of the text. The School of Cultural Texts and Records, Jadavpur University, has been digitizing, editing and publishing these texts with assistance from the University Grants Commission and the British Library.

- ❖ Title-page from the first edition of Munshi Irfan Ali, *Sahi mufidul muminin*, vol. 1, published and printed by Islamia Press, Shrihatta, BE 1317 (1910-11)
- ❖ Title-page from Moulavi Sadek Ali Marhum, *Halatunnabi*, published and printed by Islamia Press, Shrihatta, BE 1333 (1926-7)
- ❖ Title-page from *Sylhet nagrir pahela kitab o daikhurar rag*, published and printed by Islamia Press, Shrihatta, BE 1336 (1929-30)
- ❖ Specimen of Bengali text in Sylhet Nagri script from *Sylhet nagrir pahela kitab o daikhurar rag*, published and printed by Islamia Press, Shrihatta, BE 1336 (1929-30)

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ମୋର ଫାନ୍ସିମାନେ
ଜଳିବା ଲାଗୁଥିବା ଚିତ୍ର,
ତୁମ ଗର୍ଭରୁ ଉଠୁଥିବା
ତୁମ୍ଭେ ମୋର ହୃଦୟ ॥

My fancies are fireflies
specks of living light—
twinkling in the dark.

ମୋର ଫାନ୍ସିମାନେ
ଜଳିବା ଲାଗୁଥିବା ଚିତ୍ର,
ତୁମ ଗର୍ଭରୁ ଉଠୁଥିବା
ତୁମ୍ଭେ ମୋର ହୃଦୟ ॥

The same voice murmurs
in these desultory lines
which is born in wayside fancies
letting hasty glances pass by.

ସମାନ ଗର୍ଭରୁ ଉଠୁଥିବା
ଜଳିବା ଲାଗୁଥିବା ଚିତ୍ର,
ତୁମ ଗର୍ଭରୁ ଉଠୁଥିବା
ତୁମ୍ଭେ ମୋର ହୃଦୟ ॥

The butterfly does not count years
but moments
and therefore has enough time.

